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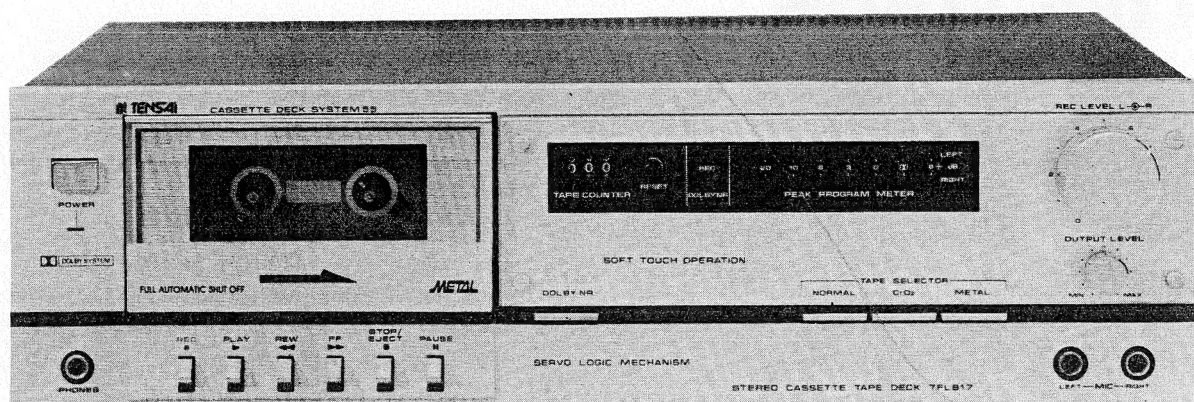
TFL-817 + 3000

STEREO CASSETTE DECK



TENSAI

INTERNATIONAL



Service Manual

48

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SPECIFICATIONS

Type.....	Soft touch, front loading stereo cassette deck
Track system.....	4 track, 2 channel stereo recording/playback
Recording system.....	AC bias system(bias frequency:90KHz)
Erasing system.....	AC system
Tape speed.....	1-7/8 ips (4.76Cm/sec)
Heads.....	Super hard permalloy recording/playback head x 1, Double gap erasing head x 1
Motor.....	Electronic governor controlled DC motor
Wow and flutter.....	Less than 0.07%(WRMS)
Fast winding time.....	Approximately 105 seconds with C-60 cassette tape
Frequency response	
-20dB RECORDING.....	Normal tape 25-14,500Hz(30-13, 500Hz \pm 3dB) CrO ₂ tape 25-15,000Hz(30-14,000Hz \pm 3dB) METAL tape 25-15,000Hz(30-14,500Hz \pm 3dB)
OdB RECORDING.....	METAL tape 30-10,000Hz \pm 3dB
Signal to noise ratio (REC/PB)	
Dolby NR ON.....	64dB(Normal tape)
(Weighted).....	66dB(CrO ₂ and METAL tape)
Dolby NR OFF.....	55dB(Normal tape)
(Weighted).....	57dB(CrO ₂ and METAL tape)
THD.....	Less than 1.0% at 1KHz, OdB RECORDING
Input sensitivity/Impedance.....	MIC 0.4mV/600-6.8K ohms LINE 90mV/47K ohm
Output level/Load impedance.....	LINE 380mV/1.2K ohms
Power consumption.....	11 Watts
Dimesions.....	440(W)x115(H)x265(D)mm
Unit weight.....	5.0Kg
NOTE:Specifications and the design subject to change without notice for improvements.	

ELECTRICAL ADJUSTMENT PROCEDURE

To make the adjustments the following instruments are necessary:

- * High sensitivity AC voltmeter
- * Audio frequency oscillator
- * Attenuator
- * Oscilloscope
- * Distortion meter
- * Wow and flutter meter w/frequency counter
- * CCIR/ARM noise Weighting filter
- * Test tape

I. TAPE SPEED

1. Connect the wow and fluttermeter to OUTPUT terminals.
 - * Output terminals: Line Output
2. Play back the 3KHz, -10dB signal of the test tape (MTT-111)
3. Insert a small-screwdriver into the adjustment hole (= behind of the motor), and adjust the semifixed resistor till the wow and flutter meter reads 3KHz.
 - * If the speed is low, turn the resistor clockwise.
 - * If the speed is high, turn it counter-clockwise.

II. HEAD AZIMUTH(Fig. 1)

1. Set the TAPE selector (EQ) to NORM.
2. Connect the voltmeter and oscilloscope to OUTPUT terminals.
3. Play back the 10KHz, -10dB signal of the test tape. (MTT-114)
4. Observing the voltmeter, turn screw(REC/P. B head adjusting screw) to maximize the signal, on both the left and right channels.
5. After adjustment, be sure to lock screw so that it cannot move.

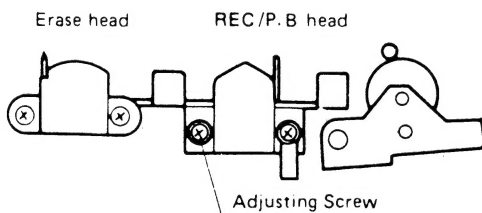


Fig. 1


III. PLAYBACK LEVEL

1. Connect the voltmeter and oscilloscope to the OUTPUT terminals.
2. Switch the DOLBY NR switch OFF.
3. Set the output level volume to be maximum position.
4. Playback the 400Hz, +3dB (= 0.540V) signal of the test tape (MTT-150).
5. VR102R(right) and VR102L(left) should be adjusted till the voltmeter read is 0.540V.

IV. PLAYBACK EQUALIZER

1. Set the TAPE selector to NORM.
2. Set the Dolby NR switch to be OFF.
3. Set the output level volume to be maximum position.
4. Connect the voltmeter and oscilloscope to the OUTPUT terminals.
5. Playback the 12.5KHz/1KHz/40Hz, -24dB signal of the test tape. (MTT-217G)
6. Read output at 1KHz playback and Adjust VR101R (right) and VR101L(left) on the EQ amplifier until the voltmeter indicates +2dB at 12.5KHz playback than output at 1KHz playback.
7. In playback of the test tape (MTT-217G), set the TAPE selector to CrO₂ and Metal position, then confirm the indication on AC voltmeter at 12.5KHz playback is dropping down approximately 4dB compare with NORM position.
 - * Standard frequency: 1KHz

V. LED LEVEL METER CALIBRATION

1. Apply a 400Hz signal to the INPUT terminals (= line input) and put the deck in the REC mode.
2. Connect the voltmeter and oscilloscope to the OUTPUT terminals.
3. Switch the Dolby NR switch OFF.
4. Set the output level volume to be maximum position.
5. Adjust the REC level volumes till the OUTPUT from the OUTPUT terminals is +3dB (= 0.540V).
6. Adjust VR301R(right) and VR301L(left) until the LED meter indicates exactly "+3"dB or DOLBY mark (= ).

VI. FM MPX FILTER

1. Set the output level volume to be maximum position.
2. Connect the voltmeter and oscilloscope to the OUTPUT terminals.
3. Apply the 400Hz signal to the INPUT terminals (= line input) and put the deck in the REC mode.
4. Control the REC level volumes till the OUTPUT from the OUTPUT terminals is approximate +3dB (= 0.540V).
5. Apply the 19KHz signal to the INPUT terminals (= line input) and put the deck in the REC mode.
6. Adjust LPF-R L101R(right) and LPF-L L101L (left) on the MPX filter processor (only white color mark core) so as to minimize the signal coming out of the OUTPUT terminals.

VII. RECORDING BIAS

1. Set the REC level controls to their minimum positions and put the deck in the record mode.
2. Set the TAPE selector to "NORM".
3. Connect the voltmeter to test point T. P2(right) and T. P1(left) on the P. B amplifier.
4. Adjust VR104R(right) and VR104L(left) until the voltmeter reads 3.4mV (= 340uA).
5. Check
 - * Cr02: Adjust VR105 until the voltmeter reads 4.6mV (= 460uA)
 - * METAL: Adjust VR106 until the voltmeter reads 7.5mV (= 750uA)

VIII. BIAS TRAP

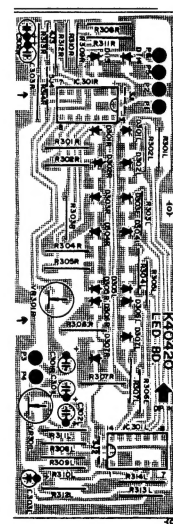
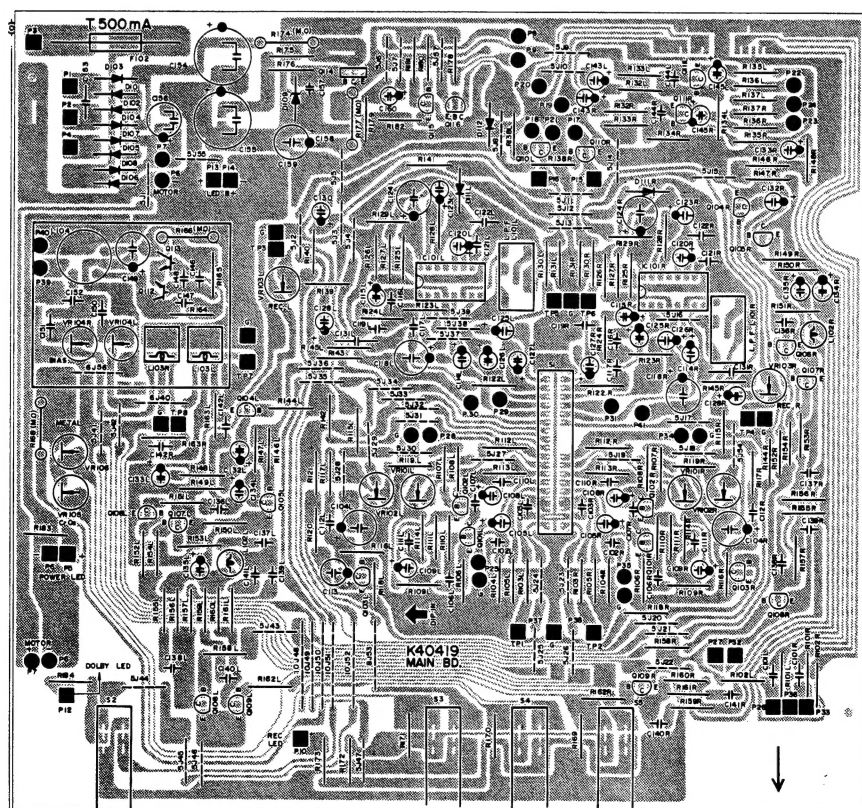
1. Put the deck in the record mode and set the REC level controls to their minimum position.
2. Set the tape selector to METAL.
3. Connect the voltmeter and oscilloscope to terminals T. P8 (right) and T. P7 (left) on the REC amplifier.

4. Adjust L103R(right) and L103L (left) until the output of the bias wave form is minimized.

IX. RECORDING LEVEL

1. Apply a 400Hz signal to the INPUT terminals (= line input) and put the deck in the REC mode.
 - * Set the output level volume to be maximum position.
2. Connect the voltmeter and oscilloscope to the OUTPUT terminals.
3. Adjust the REC level controls until the OUTPUT from the OUTPUT terminals is +3dB (= 0.540V).
4. Connect the voltmeter to test point T. P4(right) and T. P3(left) on the REC amplifier.
5. Set the TAPE selector to NORM.
6. Adjust VR103R (right) and VR103L (left) until the voltmeter reads about -9 ~ -10dB.

TOP VIEW OF P.C. BOARDS



PARTS LIST

Ref No.	Parts No.	Description	Q'ty	Ref No.	Parts No.	Description	Q'ty
MAIN PC BOARD ASS'Y K40419							
SEMICONDUCTORS							
I.C101L/R		I.C Dolby NE646N	2	R120	60F562- $\frac{1}{4}$ J	Carbon 5.6K ohm $\frac{1}{4}$ W(J)	1
Q101L/R		Transistor MPS 9633 C	2	R121	60F333- $\frac{1}{4}$ J	Carbon 33K ohm $\frac{1}{4}$ W(J)	1
Q102L/R		Transistor MPS 9633 C	2	R122L/R	60F181- $\frac{1}{4}$ J	Carbon 180 ohm $\frac{1}{4}$ W(J)	2
Q103L/R		Transistor 2SC 1815	2	R123L/R	60F332- $\frac{1}{4}$ J	Carbon 3.3K ohm $\frac{1}{4}$ W(J)	2
Q104L/R		Transistor 2SC 1815	2	R124L/R	60F473- $\frac{1}{4}$ J	Carbon 47K ohm $\frac{1}{4}$ W(J)	2
Q105L/R		Transistor 2SC 1815	2	R125L/R	60F102- $\frac{1}{4}$ J	Carbon 1K ohm $\frac{1}{4}$ W(J)	2
Q106L/R		Transistor 2SC 1815	2	R126L/R	60F102- $\frac{1}{4}$ J	Carbon 1K ohm $\frac{1}{4}$ W(J)	2
Q107L/R		Transistor 2SC 1815	2	R127L/R	60F184- $\frac{1}{4}$ J	Carbon 180K ohm $\frac{1}{4}$ W(J)	2
Q108L/R		Transistor 2SC 1815	2	R128L/R	60F274- $\frac{1}{4}$ J	Carbon 270K ohm $\frac{1}{4}$ W(J)	2
Q109L/R		Transistor 2SC 1815	2	R129L/R	60F391- $\frac{1}{4}$ J	Carbon 390 ohm $\frac{1}{4}$ W(J)	2
Q110L/R		Transistor 2SC 1815	2	R130L/R	60F221- $\frac{1}{4}$ J	Carbon 220 ohm $\frac{1}{4}$ W(J)	2
Q111L/R		Transistor 2SC 1815	2	R131L/R	60F104- $\frac{1}{4}$ J	Carbon 100K ohm $\frac{1}{4}$ W(J)	2
Q112		Transistor MPS A05	1	R132L/R	60F392- $\frac{1}{4}$ J	Carbon 3.9K ohm $\frac{1}{4}$ W(J)	2
Q113		Transistor MPS A05	1	R133L/R	60F473- $\frac{1}{4}$ J	Carbon 47K ohm $\frac{1}{4}$ W(J)	2
Q114		Transistor 2SD 880 Y	1	R134L/R	60F473- $\frac{1}{4}$ J	Carbon 47K ohm $\frac{1}{4}$ W(J)	2
Q115		Transistor 2SC 1815	1	R135L/R	60F122- $\frac{1}{4}$ J	Carbon 1.2K ohm $\frac{1}{4}$ W(J)	2
Q116		Transistor MPS A55	1	R136L/R	60F470- $\frac{1}{4}$ J	Carbon 47 ohm $\frac{1}{4}$ W(J)	2
D101		Rectifier Diode 1N4002	1	R137L/R	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	2
D102		Rectifier Diode 1N4002	1	R138L/R	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	2
D103		Rectifier Diode 1N4002	1	R139	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	1
D104		Rectifier Diode 1N4002	1	R140	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	1
D105		Rectifier Diode 1N4002	1	R141	60F473- $\frac{1}{4}$ J	Carbon 47K ohm $\frac{1}{4}$ W(J)	1
D106		Rectifier Diode 1N4002	1	R142	60F473- $\frac{1}{4}$ J	Carbon 47K ohm $\frac{1}{4}$ W(J)	1
D107		Rectifier Diode 1N4002	1	R143	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	1
D108		Rectifier Diode 1N4002	1	R144L/R	60F102- $\frac{1}{4}$ J	Carbon 1K ohm $\frac{1}{4}$ W(J)	2
D109		Zener Diode WZ 240	1	R145L/R	60F562- $\frac{1}{4}$ J	Carbon 5.6K ohm $\frac{1}{4}$ W(J)	2
D110				R146L/R	60F224- $\frac{1}{4}$ J	Carbon 220K ohm $\frac{1}{4}$ W(J)	2
D111L/R		Diode CDG 24	2	R147L/R	60F562- $\frac{1}{4}$ J	Carbon 5.6K ohm $\frac{1}{4}$ W(J)	2
D112		Diode CDG 24	1	R148L/R	60F562- $\frac{1}{4}$ J	Carbon 5.6K ohm $\frac{1}{4}$ W(J)	2
D114		LED Diode SLB 61RR 3HL(RED)	1	R149L/R	60F473- $\frac{1}{4}$ J	Carbon 47K ohm $\frac{1}{4}$ W(J)	2
D115		LED Diode SLB 61PG 3HL(Green)	1	R150L/R	60F182- $\frac{1}{4}$ J	Carbon 1.8K ohm $\frac{1}{4}$ W(J)	2
RESISTORS				R151L/R	60F822- $\frac{1}{4}$ J	Carbon 8.2K ohm $\frac{1}{4}$ W(J)	2
R101L/R	60F473- $\frac{1}{4}$ J	Carbon 47K ohm $\frac{1}{4}$ W(J)	2	R152L/R	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	2
R103L/R	60F100- $\frac{1}{4}$ J	Carbon 10 ohm $\frac{1}{4}$ W(J)	2	R153L/R	60F270- $\frac{1}{4}$ J	Carbon 27 ohm $\frac{1}{4}$ W(J)	2
R104L/R	60F272- $\frac{1}{4}$ J	Carbon 2.7K ohm $\frac{1}{4}$ W(J)	2	R154L/R	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	2
R105L/R	60F104- $\frac{1}{4}$ J	Carbon 100K ohm $\frac{1}{4}$ W(J)	2	R155L/R	60F153- $\frac{1}{4}$ J	Carbon 15K ohm $\frac{1}{4}$ W(J)	2
R106L/R	60F221- $\frac{1}{4}$ J	Carbon 220 ohm $\frac{1}{4}$ W(J)	2	R156L/R	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	2
R107L/R	60F224- $\frac{1}{4}$ J	Carbon 220K ohm $\frac{1}{4}$ W(J)	2	R157L/R	60F100- $\frac{1}{4}$ J	Carbon 10 ohm $\frac{1}{4}$ W(J)	2
R108L/R	60F562- $\frac{1}{4}$ J	Carbon 5.6K ohm $\frac{1}{4}$ W(J)	2	R158L/R	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	2
R109L/R	60F471- $\frac{1}{4}$ J	Carbon 470 ohm $\frac{1}{4}$ W(J)	2	R159L/R	60F123- $\frac{1}{4}$ J	Carbon 12K ohm $\frac{1}{4}$ W(J)	2
R110L/R	60F274- $\frac{1}{4}$ J	Carbon 270K ohm $\frac{1}{4}$ W(J)	2	R160L/R	60F332- $\frac{1}{4}$ J	Carbon 3.3K ohm $\frac{1}{4}$ W(J)	2
R111L/R	60F331- $\frac{1}{4}$ J	Carbon 330 ohm $\frac{1}{4}$ W(J)	2	R161L/R	60F470- $\frac{1}{4}$ J	Carbon 47 ohm $\frac{1}{4}$ W(J)	2
R112L/R	60F682- $\frac{1}{4}$ J	Carbon 6.8K ohm $\frac{1}{4}$ W(J)	2	R162L/R	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	2
R113L/R	60F394- $\frac{1}{4}$ J	Carbon 390K ohm $\frac{1}{4}$ W(J)	2	R163L/R	60F682- $\frac{1}{4}$ J	Carbon 6.8K ohm $\frac{1}{4}$ W(J)	2
R114L/R	60F331- $\frac{1}{4}$ J	Carbon 330 ohm $\frac{1}{4}$ W(J)	2	R164	60F563- $\frac{1}{4}$ J	Carbon 56K ohm $\frac{1}{4}$ W(J)	1
R115L/R	60F222- $\frac{1}{4}$ J	Carbon 2.2K ohm $\frac{1}{4}$ W(J)	2	R165	60F563- $\frac{1}{4}$ J	Carbon 56K ohm $\frac{1}{4}$ W(J)	1
R116L/R	60F155- $\frac{1}{4}$ J	Carbon 1.5M ohm $\frac{1}{4}$ W(J)	2	R166	60M100- $\frac{1}{2}$ J	METAL Oxide 10 ohm $\frac{1}{2}$ W(J)	1
R117L/R	60F472- $\frac{1}{4}$ J	Carbon 4.7K ohm $\frac{1}{4}$ W(J)	2	R167			
R118L/R	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	2	R168	60M102- $\frac{1}{2}$ J	METAL Oxide 1K ohm $\frac{1}{2}$ W(J)	1
R119L/R	60F332- $\frac{1}{4}$ J	Carbon 3.3K ohm $\frac{1}{4}$ W(J)	2	R169	60F473- $\frac{1}{4}$ J	Carbon 47K ohm $\frac{1}{4}$ W(J)	1
				R170	60F473- $\frac{1}{4}$ J	Carbon 47K ohm $\frac{1}{4}$ W(J)	1
				R171	60F473- $\frac{1}{4}$ J	Carbon 47K ohm $\frac{1}{4}$ W(J)	1
				R172	60F332- $\frac{1}{4}$ J	Carbon 3.3K ohm $\frac{1}{4}$ W(J)	1
				R173	60F272- $\frac{1}{4}$ J	Carbon 2.7K ohm $\frac{1}{4}$ W(J)	1
				R174	60M339-1J	METAL Oxide 3.3 ohm 1W(J)	1
				R175	60F391- $\frac{1}{4}$ J	Carbon 390 ohm $\frac{1}{4}$ W(J)	1
				R176	60F331- $\frac{1}{4}$ J	Carbon 330 ohm $\frac{1}{4}$ W(J)	1

PARTS LIST

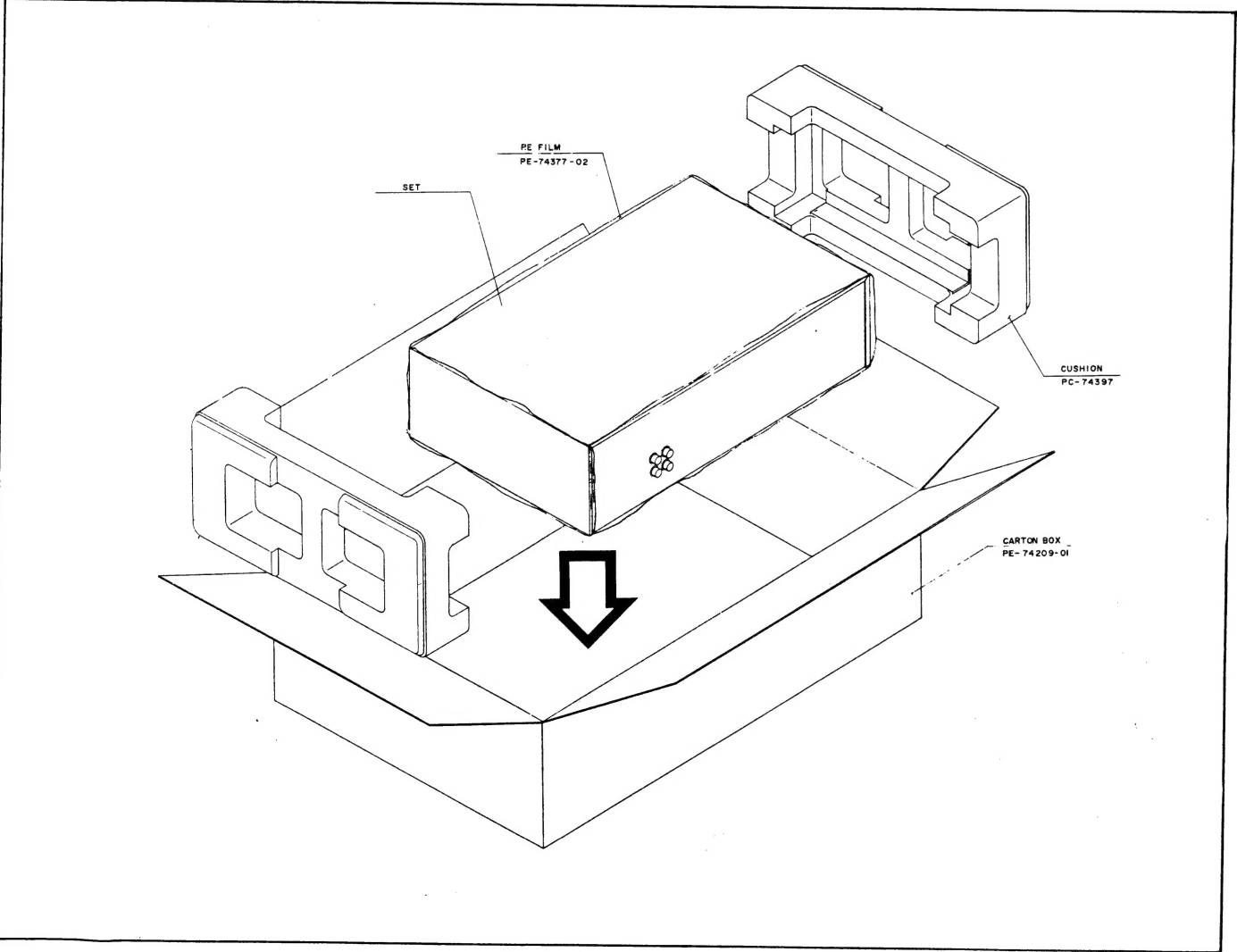
Ref No.	Parts No.	Description	Q'ty
R177	60M680- $\frac{1}{2}$ J	METAL Oxide 68 ohm $\frac{1}{2}$ W(J)	1
R178	60F102- $\frac{1}{4}$ J	Carbon 1K ohm $\frac{1}{4}$ W(J)	1
R179	60F473- $\frac{1}{4}$ J	Carbon 47K ohm $\frac{1}{4}$ W(J)	1
R180	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	1
R181	60F473- $\frac{1}{4}$ J	Carbon 47K ohm $\frac{1}{4}$ W(J)	1
R182	60F103- $\frac{1}{4}$ J	Carbon 10K ohm $\frac{1}{4}$ W(J)	1
R183	60F182- $\frac{1}{4}$ J	Carbon 1.8K ohm $\frac{1}{4}$ W(J)	1
R184	60F152- $\frac{1}{4}$ J	Carbon 1.5K ohm $\frac{1}{4}$ W(J)	1
VR101L/R	PE-16002	Semifixed 47K(B)	2
VR102L/R	PE-16003	Semifixed 22K(B)	2
VR103L/R	PE-16002	Semifixed 47K(B)	2
VR104L/R	PE-16012	Semifixed 100K(B)	2
VR105L/R	PE-16004	Semifixed 2.2K(B)	1
VR106	PE-16009	Semifixed 1K(B)	1
FUSE			
F102		Fuse T500mA/250V (20mm) Type Secondary	1
CAPACITORS			
C102L/R	50MY472-50J	Mylar 0.0047 μ F 50V	2
C103L/R	50CE681-50J	Ceramic 680PF 50V	2
C104L/R	50AL470-25E	Elect 47 μ F 25V	2
C105L/R	50AL479-25E	Elect 4.7 μ F 25V	2
C106L/R	50CE101-50J	Ceramic 100PF 50V	2
C107L/R	50CE470-50J	Ceramic 47PF 50V	2
C108L/R	50AL479-25E	Elect 4.7 μ F 25V	2
C109L/R	50AL330-16E	Elect 33 μ F 16V	2
C110L/R	50MY822-50J	Mylar 0.0082 μ F 50V	2
C111L/R	50MY103-50J	Mylar 0.01 μ F 50V	2
C112L/R	50MY153-50J	Mylar 0.015 μ F 50V	2
C113	50AL470-16E	Elect 47 μ F 16V	1
C114L/R	50AL109-50E	Elect 1 μ F 50V	2
C115L/R	50AL100-16E	Elect 10 μ F 16V	2
C116L/R	50MY472-50J	Mylar 0.0047 μ F 50V	2
C117L/R	50MY562-50J	Mylar 0.0056 μ F 50V	2
C118L/R	50AL101-16E	Elect 100 μ F 16V	2
C119L/R	50MY273-50J	Mylar 0.027 μ F 50V	2
C120L/R	50AL100-16E	Elect 10 μ F 16V	2
C121L/R	50MY473-50J	Mylar 0.047 μ F 50V	2
C122L/R	50MY104-50J	Mylar 0.1 μ F 50V	2
C123L/R	50AL338-50E	Elect 0.33 μ F 50V	2
C124L/R	50AL101-16E	Elect 100 μ F 16V	2
C125L/R	50AL100-16E	Elect 10 μ F 16V	2
C126L/R	50AL100-16E	Elect 10 μ F 16V	2
C127L/R	50AL100-16E	Elect 10 μ F 16V	2
C128L/R	50AL100-16E	Elect 10 μ F 16V	2
C129L/R			
C130	50AL100-25E	Elect 10 μ F 25V	1
C131L/R	50MY222-50J	Mylar 0.0022 μ F/50V	2
C132L/R	50AL479-25E	Elect 4.7 μ F 25V	2
C133L/R	50AL338-50E	Elect 0.33 μ F 50V	2
C134L/R	50AL479-25E	Elect 4.7 μ F 25V	2
C135L/R	50AL330-16E	Elect 33 μ F 16V	2

Ref No.	Parts No.	Description	Q'ty
C136L/R	50MY682-50J	Mylar 0.0068 μ F 50V	2
C137L/R	50MY183-50J	Mylar 0.018 μ F 50V	2
C138L/R	50MY103-50J	Mylar 0.01 μ F 50V	2
C139L/R	50MY183-50J	Mylar 0.018 μ F 50V	2
C140L/R	50MY472-50J	Mylar 0.0047 μ F 50V	2
C141L/R	50MY153-50J	Mylar 0.015 μ F 50V	2
C142L/R			
C143L/R	50AL100-25E	Elect 10 μ F 25V	2
C144L/R	50CE470-50J	Ceramic 47PF 50V	2
C145L/R	50AL220-16E	Elect 22 μ F 16V	2
C146	50MY822-50J	Mylar 0.0082 μ F 50V	1
C147	50MY822-50J	Mylar 0.0082 μ F 50V	1
C148	50MY103-50J	Mylar 0.01 μ F 50V	1
C149	50AL470-25E	Elect 47 μ F 25V	1
C150	50PS471-50J	Poly 470PF 50V	1
C151	50PS471-50J	Poly 470PF 50V	1
C152	50PS582-125J	Poly 5800PF 125V	1
C153	50CE103-500J	Ceramic 0.01 μ F 500V	1
C154	50AL102-35E	Elect 1000 μ F 35V	1
C155	50AL471-35E	Elect 470 μ F 35V	1
C156	50AL471-16E	Elect 470 μ F 16V	1
C157	50CE103-50J	Ceramic 0.01 μ F 50V	1
C158			
C159	50AL221-25E	Elect 220 μ F 25V	1
C160	50AL479-25E	Elect 4.7 μ F 25V	1
C161			
COIL & INDUCTORS			
L101L/R	PE-30180	Dolby Filter	2
L102L/R	PE-30193	Inductor 4.5mH	2
L103L/R	PE-30178	Rec trap coil	2
L104	PE-30189	OSC coil	1
LED PC BOARD ASS'Y K40420			
SEMICONDUCTORS			
I.C301L/R		I.C LB1407	2
D301L/R		LED Diode SLB 61RR 3HL(RED)	2
D302L/R		LED Diode SLB 61RR 3HL(RED)	2
D303L/R		LED Diode SLB 61RR 3HL(RED)	2
D304L/R		LED Diode SLB 61RR 3HL(RED)	2
D305L/R		LED Diode SLB 61PG 3HL(Green)	2
D306L/R		LED Diode SLB 61PG 3HL(Green)	2
D307L/R		LED Diode SLB 61PG 3HL(Green)	2
RESISTORS			
R301L/R	60F122- $\frac{1}{4}$ J	Carbon 1.2K ohm $\frac{1}{4}$ W(J)	2
R302L/R	60F122- $\frac{1}{4}$ J	Carbon 1.2K ohm $\frac{1}{4}$ W(J)	2
R303L/R	60F122- $\frac{1}{4}$ J	Carbon 1.2K ohm $\frac{1}{4}$ W(J)	2
R304L/R	60F122- $\frac{1}{4}$ J	Carbon 1.2K ohm $\frac{1}{4}$ W(J)	2
R305L/R	60F391- $\frac{1}{4}$ J	Carbon 390 ohm $\frac{1}{4}$ W(J)	2
R306L/R	60F391- $\frac{1}{4}$ J	Carbon 390 ohm $\frac{1}{4}$ W(J)	2
R307L/R	60F391- $\frac{1}{4}$ J	Carbon 390 ohm $\frac{1}{4}$ W(J)	2
R308L/R	60F820- $\frac{1}{4}$ J	Carbon 82 ohm $\frac{1}{4}$ W(J)	2

PARTS LIST

Ref No.	Parts No.	Description	Q'ty	Ref No.	Parts No.	Description	Q'ty
R309L/R	60F223-1/4J	Carbon 22K ohm 1/4W(J)	2	CHASSIS MTG SEMICONDUCTORS			
R310L/R	60F223-1/4J	Carbon 22K ohm 1/4W(J)	2	D113		LED Diode SLB61RR3HL(RED)	1
R311L/R	60F121-1/4J	Carbon 120 ohm 1/4W(J)	2	CAPACITORS			
R312L/R	60F123-1/4J	Carbon 12K ohm 1/4W(J)	2	C162L/R	50CE472-50J	Crermic 0.0047μF 50V	2
R313L/R	60F153-1/4J	Carbon 15K ohm 1/4W(J)	2	C163	DE7150F472MVA	Ceramic 0.0047μF 400V AC "KC Type"	1
R314L/R	60F823-1/4J	Carbon 82K ohm 1/4W(J)	2	FUSES			
VR310L/R	PE-16005	Semifixed 10K(B)	2	F101		Fuse T160mA/250V(20mm) Primary	1
CAPACITORS				F103		Fuse T100mA/250V(20mm) Primary	1
C301L/R	50AL100-16E	Elect 10μF 16V	2				
C302L/R	50AL109-50E	Elect 1μF 50V	2				
C303L/R	50AL100-16E	Elect 10μF 16V	2				

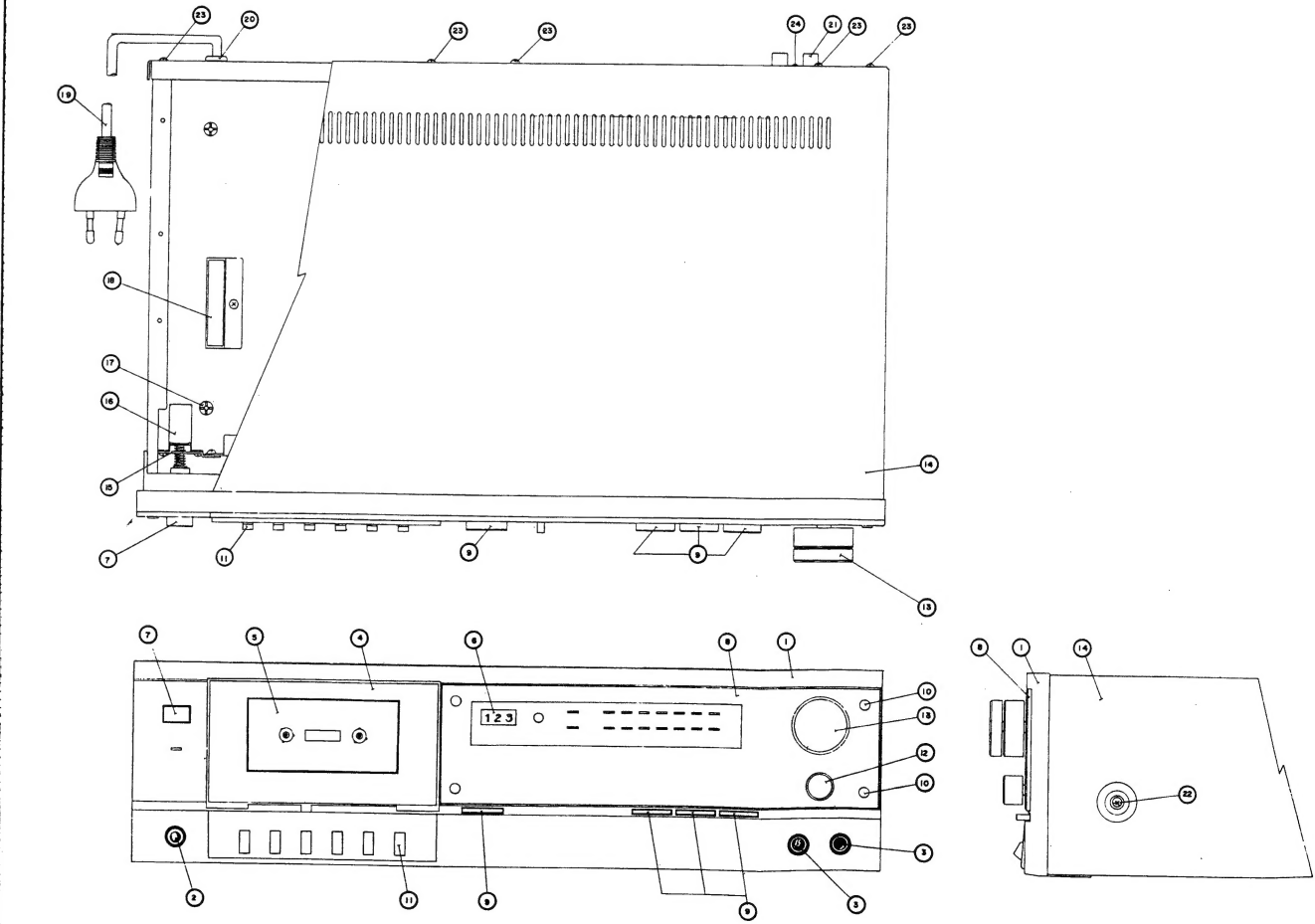
PACKING



DISASSEMBLY

PARTS LIST

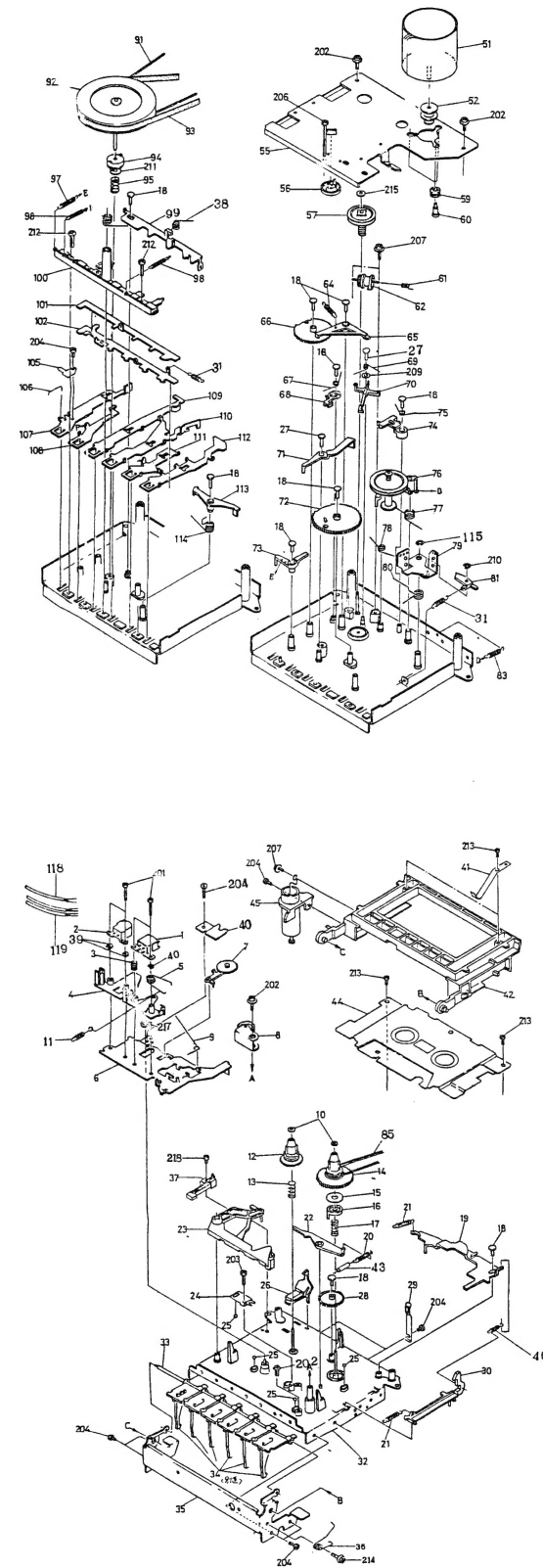
NO.	PARTS NO.	DESCRIPTION	Q'TY	NO.	PARTS NO.	DESCRIPTION	Q'TY
1	PB-61140	FRONT PANEL	1	13	PD-72367	KNOB(DOUBLE)	1
2	PE-95035	PHONE JACK	1	14	PC-74388	TOP CABINET	1
3	PE-95024	MIC JACK	2	15	PE-68827	POWER SW B.K.T	1
4	PD-71362-01	DECK DOOR		16	PD-90303	POWER SW	1
5	PD-63188	DOOR LENS	1	17	AE-71053	RUBBER FOOT	4
6	PD-75056	COUNTER(TAPE)	1	18	PE-71281	FUSE COVER	1
7	PE-72362	POWER KNOB	1	19	PE-67051-03	AC POWER CORD	1
8	PC-63180	ACRYL VIEW	1	20	PD-71008A	AC CORD STOPPER	1
9	PE-72365	PUSH KNOB	4	21	PE-95138	RCA JACK(4P)	1
10	PE-71331	ACRYL INSERT PIN	4	22		SCREW #3 WPTC 3×8(B)	4
11	PE-72372-01	DECK KNOB	6	23		SCREW #3 PTC 3×6(B)	9
12	PE-72366	KNOB(φ14)	1	24		SCREW #2 PTC 3×6(B)	1



EXPLODED VIEW OF DECK MECHANISM ASS'Y

PARTS LIST ACCORDING TO DECK MECHANISM ASS'Y

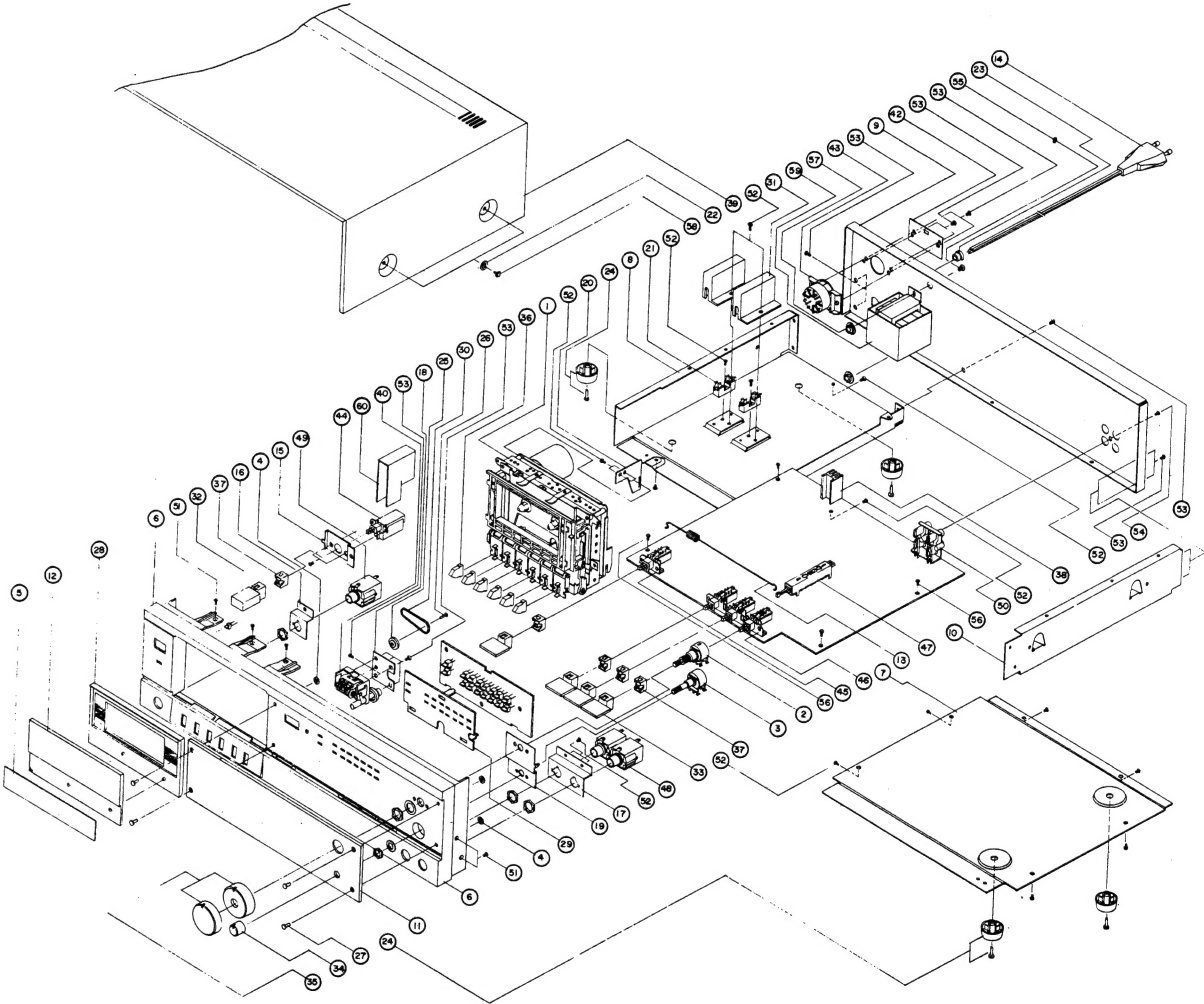
NO.	PARTS CORD	DESCRIPTION	Q'TY	NO.	PARTS CORD	DESCRIPTION	Q'TY
1	H2334-0105	R/P HEAD	1	67	PBE6170	SPRING	1
2	H4322-01	ERASE HEAD	1	68	PBE14941	EJECT SUB PLATE	1
3	PBE13666	C-SPRING	1	69	PBE6160	SPRING	1
4	PBC1134	HEAD STAND	1	70	PBD1645	SENSOR	1
5	PBE6163	SPRING	1	71	PBE14946	STOP ARM	1
6	PBC1133	HEAD BASE	1	72	PBD1647	ASSIST GEAR A	1
7	PBE02040	IDLER ASS'Y	1	73	PBE14958	START LEVER C	1
8	PBE01600	PINCH ARM ASS'Y	1	74	PBE14992	SENSOR ARM	1
9	PBE6161	SPRING	1	75	PBE6177	SPRING	1
10	PGWM16×040020	WASHER	2	76	PBE01593	TENSION ASS'Y	1
11	PBE6189	T-SPRING	1	77	PBE6164	SPRING	1
12	PBD1622	S-REEL	1	78	PBE6165	SPRING	1
13	PBE6003	S-BRAKE SPRING	1	79	PBE01592	CHANGE PLATE A ASS'Y	1
14	PBE01595	T-REEL ASS'Y	1	80	PBE6166	SPRING	1
15	PBE14720	FRICTION PLATE	1	81	PBE14936	CHANGE PLATE B	1
16	PBE14935	CLUTCH PLATE	1	83	PBE6154	T-SPRING	1
17	PBE6184	C-SPRING	1	85		COUNTER BELT	1
18	PBE14926	BUSH	9	91	PBE5046	BELT	1
19	PBD1643	BRAKE	1	92	PBE14948	FLYWHEEL	1
20	PBE6017	T-SPRING	1	93	PBE5044	BELT	1
21	PBE6155	T-SPRING	2	94	PBE14944	FLYWHEEL GEAR	1
22	PBE14933	PAUSE ARM	1	95	PBE6168	C-SPRING	1
23	PBD1642	CAM LEVER	1	96	PBE6175	SPRING	1
24	PBE14951	HOLDER PLATE ASS'Y	1	97	PBE6102	T-SPRING	1
25	PBE14460	STEEL BALL	4	98	PBE6124	T-SPRING	2
26	PBC1132	INTER ROCK PLATE	1	99	PBD1658	CAM PLATE	1
27	PBE14927	BUSH	2	100	PBD1646	LEVER HOLDER	1
28	PBE14939	IDLER GEAR	1	101	PBD1723	INTER PLATE	1
29	PBE14956	CASSETTE HOLDER	2	102	PBD1655	LOCK PLATE	1
30	PBD1721	LATCH LEVER	1	105	PBE14954	PAUSE PLATE SPRING	1
31	PBE6155	T-SPRING	2	106	PBE14982	LOCK PIN	1
32	PBC0780	CHASSIS OS	1	107	PBD1726	PAUSE LEVER	1
33	PBE14928	BUTTON SHAFT	1	108	PBD1727	STOP LEVER	1
34	PBE2951	BUTTON LEVER	6	109	PBD1728	FF LEVER	1
35	PBD1722	BUTTON FRAME	1	110	PBD1729	REW LEVER	1
36	PBE6167	SPRING	1	111	PBD1730	PLAY LEVER	1
37	MSW1168	LEAF SWITCH	1	112	PBD1731	REC LEVER	1
38	PBE6183	SPRING	1	113	PBE14942	START LEVER A	1
39	PBE14966	WASHER	1	114	PBE6171	SPRING	1
40	PBE15334	STOPPER	1	115	PGRE40A	E-RING	1
41	PBE14715	KEEP PLATE	2	118		LEAD WIRE	1
42	PBB2096	CASSETTE CASE	1	119		LEAD WIRE	2
43	PBE15318	TUBE	1	201	PGSN20A2011	SCREW(HEAD)	4
44	PBD2321	MECHANISM COVER	1	202	PGST15A2608	F TAPPING SCREW	4
45	PBE02007	CYLINDER ASS'Y	1	203	PGSD10A2610	DT SCREW	1
46	PBE6005	T-SPRING	1	204	PGSD10A2605	DT SCREW	10
51	EG510ED2B2	MOTOR	1	205	PGSD10A2008	DT SCREW	1
52	PBE14937	PULLEY	1	206	PGSD10A2630	DT SCREW	1
55	PBD1659	HOLDER	1	207	PGST15A2606	F TAPPING SCREW	3
56	PBE14994	CAPSTAN SUPPORT	1	209	PGWM26×060020	WASHER	1
57	PBD1644	WORM	1	210	PGRE25A	E RING	1
59	PBE13360	RUBBER CUSHION	3	211	PGWP21×080013	WASHER	1
60	PBE13913	SD SCREW	3	212	PGSD10A2608	DT SCREW	2
61	PBE6097	C-SPRING	1	213	PGST20A2005	TAPPING SCREW	4
62	PBD1660	AS CAM	1	214	PBE14984	SCREW	1
64	PBE6057	REW SPRING	1	215	PGWM21×070030	WASHER	1
65	PBE14945	START LEVER	1	217	PGRS50P	CS RING	1
66	PBD1648	ASSIST GEAR B	1	218	PGSP10A2006	DT SCREW	1



EXPLODED VIEW OF CABINET AND CHASSIS

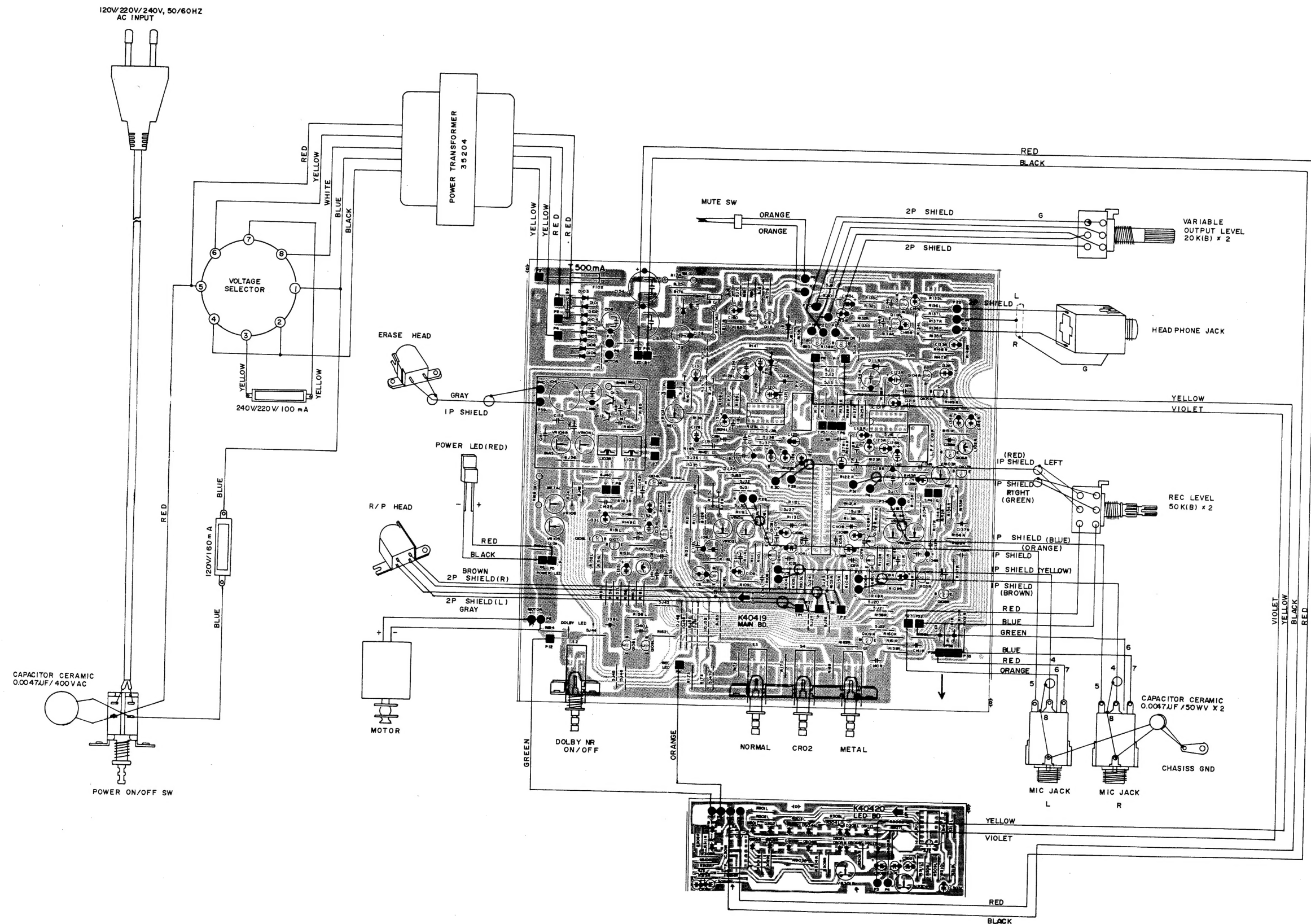
PARTS LIST ACCORDING TO EXPLODED VIEW

NO.	PARTS NO.	DESCRIPTION	Q'TY	NO.	PARTS NO.	DESCRIPTION	Q'TY
1	AC-10104	DECK MECHANISM ASS'Y	1	30	PE-71356-02	COUNTER BELT	1
2	PE-15141	POTENTIOMETER(DOUBLE)	1	31	PE-71281	FUSE COVER	1
3	PE-15142	POTENTIOMETER(OUT LEVEL)	1	32	PE-72362	KNOB(POWER)	1
4	PE-25331	φ3 CS PUSH RING	4	33	PE-72365	KNOB(PUSH)	4
5	PE-63187-01	DOOR PLATE	1	34	PE-72366	KNOB(φ14)	1
6	PB-61140	FRONT PANEL	1	35	PE-72367	KNOB(DOUBLE)	1
7	PC-62520	BOTTOM PLATE	1	36	PE-72372-01	KNOB(DECK)	6
8	PC-62521	MAIN FRAME(L)	1	37	PE-72373	KNOB BEZEL	5
9	PC-62522A	BACK CHASSIS	1	38	PE-73060-02	TR HEAT SINK	1
10	PC-62524	SIDE FRAME(R)	1	39	PE-74388	TOP COVER	1
11	PC-63180	ACRYL VIEW	1	40	PD-75056	TAPE COUNTER	1
12	PD-63188	DECK DOOR WINDOW	1	41			
13	PE-66104	REC SPRING	1	42	PE-77124	VOLTAGE COVER PLATE	1
14	PE-67051-03	AC POWER CORD	1	43	PE-90376	VOLTAGE SELECTOR SW	1
15	PE-68827	POWER SW B.K.T	1	44	PD-90303	POWER SW(PUSH)	1
16	PE-68829	PHONE JACK B.K.T	1	45	PE-90352	PUSH SW(1GANG)	1
17	PE-68830	MIC JACK B.K.T	1	46	PE-90353	PUSH SW(3GANG)	1
18	PE-68831	COUNTER B.K.T	1	47	PE-90354	SLIDE SW	1
19	PE-68865A	G.N.D PLATE	1	48	PE-95024	MIC JACK	1
20	PE-68866	REC B.K.T	1	49	PE-95035	PHONE JACK	1
21	PE-69096	FUSE HOLDER(20m/m)	1	50	PE-95138	R.C.A JACK(4P)	1
22	PE-70046	VINYL WASHER	4	51		SCREW #3 FTC 3×6	12
23	PD-71008A	CORD STOPPER	1	52		SCREW #2 BTC 3×6	20
24	AE-71053	RUBBER FOOT ASS'Y	4	53		SCREW #3 PTC 3×6(B)	9
25	PE-71235	COUNTER PULLEY	1	54		SCREW #2 PTC 3×6(B)	1
26	PE-70051	PIVOT(SMALL)	1	55		SCREW # WPM 4×8	2
27	PE-71331	ACRYL INSERT PIN	4	56		SCREW #2 WPTC 3×8	4
28	PD-71362-01	DECK DOOR	1	57		FLANGE NUT M4	2
29	PD-71333	L.E.D BODY	1	58		SCREW #3 WPTC 3×8(B)	4

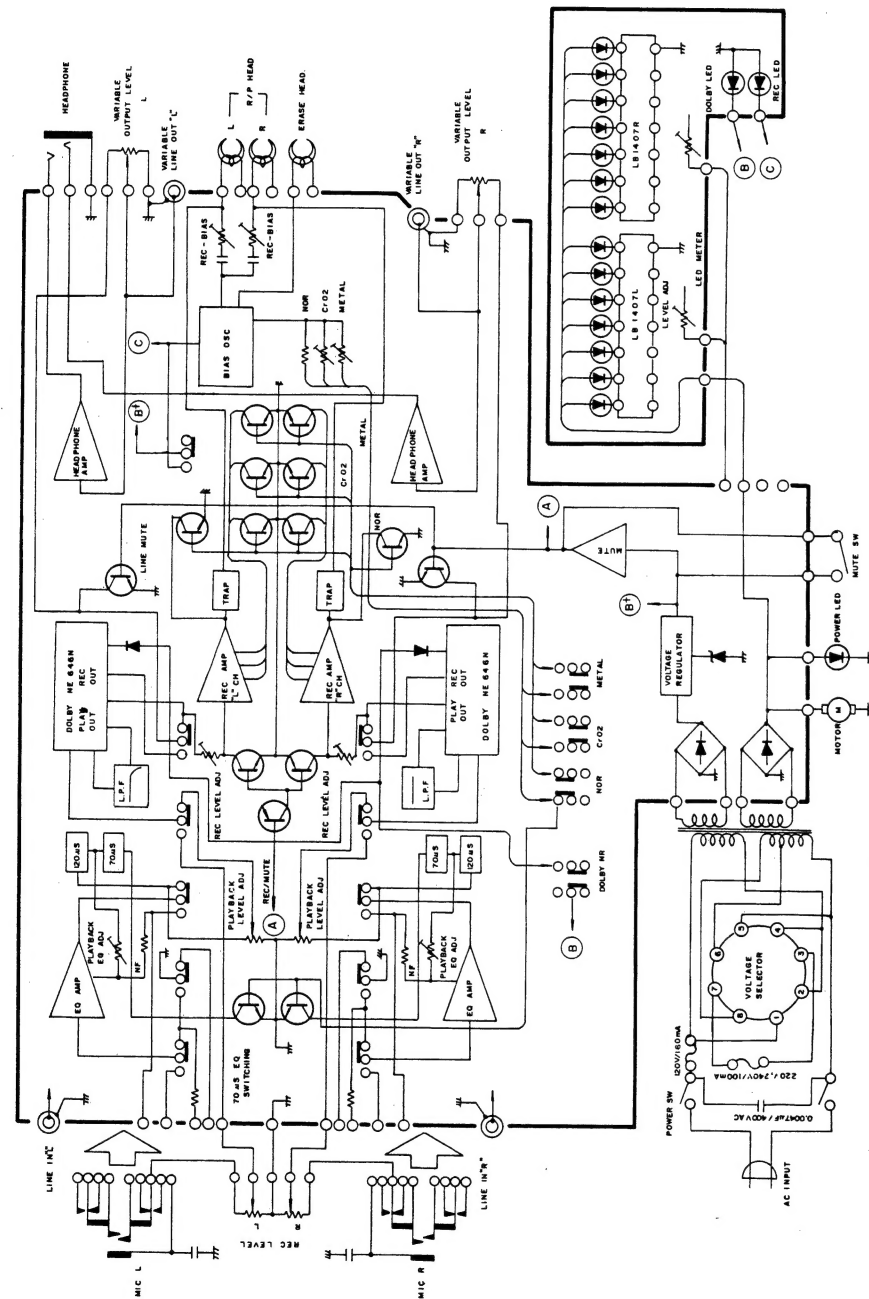


59	PD-35204	TRANSFORMER	1
60	PE-71289	POWER SW COVER	1

POINT TO POINT WIRING DIAGRAM



BLOCK DIAGRAM



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